Claims

1. A coal drying method employed for the purpose of drying coal to be used as fuel for a coal-fired boiler, which comprises drying the coal at a temperature of 80 to 150°C by using combustion exhaust gas having passed through an air heater for said coal-fired boiler.

2. A coal drying method as claimed in claim 1 wherein the combustion exhaust gas having been used for the drying purpose is fed to an electrostatic precipitator for said coal-fired boiler.

3. A coal drying method as claimed in claim 1 or 2 wherein the dried coal is self-consumed as fuel for said coal-fired boiler without cooling it.

4. A coal drying method as claimed in claim 1 wherein said coal-fired boiler is equipped with a coal-fired auxiliary furnace, and hot combustion exhaust gas from said auxiliary furnace is used in admixture with the exhaust gas used for the drying purpose.

5. A coal drying method as claimed in claim 4 wherein said coal-fired boiler is equipped with a coal-fired auxiliary furnace, hot combustion exhaust gas from said auxiliary furnace is used in admixture with the exhaust gas used for the drying purpose, the required amount of the resulting dried coal is self-consumed as fuel for said coal-fired boiler and said auxiliary furnace without cooling it,

and the remainder of the dried coal is cooled.

6. Coal drying equipment comprising a coal-fired boiler, an air heater for effecting heat exchange between combustion exhaust gas from said coal-fired boiler and combustion air for said coal-fired boiler, and a dryer for drying coal by feeding thereto the combustion exhaust gas having passed through said air heater.

7. A method for aging reformed coal produced by heating medium-quality or low-quality coal to a temperature of 180 to less than 300°C and then cooling it to a temperature of 150°C or below, or by heating medium-quality or low-quality coal to a temperature of 300 to 500°C at a heating rate of not less than 100°C per minute and then cooling it to a temperature of 250°C or below at a cooling rate of not less than 50°C per minute, which comprises cooling the reformed coal to a temperature of 70°C or below, and storing the reformed coal for 1 month or more in a state of isolation from the atmosphere.

8. A method for aging reformed coal as claimed in claim 7 wherein the state of isolation from the atmosphere is established by placing the reformed coal in a depression formed at a disused coal mine and covering it with a heat-resistant and water-resistant sheet.

9. A method for aging reformed coal produced by heating medium-quality or low-quality coal to a temperature of 180 to

less than 300°C and then cooling it to a temperature of 150°C or below or by heating medium-quality or low-quality coal to a temperature of 300 to 500°C at a heating rate of not less than 100°C per minute and then cooling it to a temperature of 250°C or below at a cooling rate of not less than 50°C per minute, which comprises storing the reformed coal for 1 month or more under any of the following atmospheres (a) and (b).

(a) An atmosphere having an oxygen concentration of not greater than 12% by volume and a temperature of 100°C or below.

(b) An atmosphere having an oxygen concentration of not greater than 21% by volume and a temperature of 70°C or below.

10. Aged reformed coal obtained by heating medium-quality or low-quality coal to a temperature of 180 to less than 300°C and then cooling it to a temperature of 150°C or below, or by heating medium-quality or low-quality coal to a temperature of 300 to 500°C at a heating rate of not less than 100°C per minute and then cooling it to a temperature of 250°C or below at a cooling rate of not less than 50°C per minute; cooling the resulting reformed coal to a temperature of 70°C or below; and storing the reformed coal for 1 month or more in a state of isolation from the atmosphere.

11. A method for aging reformed coal as claimed in claim 10 wherein the state of isolation from the atmosphere is

established by placing the reformed coal in a depression formed at a disused coal mine and covering it with a heat-resistant and water-resistant sheet.

12. Aged reformed coal obtained by heating medium-quality or low-quality coal to a temperature of 180 to less than 300°C and then cooling it to a temperature of 150°C or below or by heating medium-quality or low-quality coal to a temperature of 300 to 500°C at a heating rate of not less than 100°C per minute and then cooling it to a temperature of 250°C or below at a cooling rate of not less than 50°C per minute; and storing the resulting reformed coal for 1 month or more under any of the following atmospheres (a) and (b).

(a) An atmosphere having an oxygen concentration of not greater than 12% by volume and a temperature of 100°C or below,

(b) An atmosphere having an oxygen concentration of not greater than 21% by volume and a temperature of 70°C or below.

13. A process for producing reformed coal by heating medium-quality or low-quality coal to a temperature of 180 to less than 300°C and then cooling it to a temperature of 150°C or below or by heating medium-quality or low-quality coal to a temperature of 300 to 500°C at a heating rate of not less than 100°C per minute and then cooling it to a temperature of 250°C or below at a cooling rate of not less than 50°C per

minute, which comprises heating the medium-quality or low-quality coal by using combustion exhaust gas obtained at the outlet of an economizer included in coal-fired boiler equipment or at the outlet of a denitrator included therein.

14. A process for producing reformed coal as claimed in claim 13 wherein the medium-quality or low-quality coal is previously dried by using the combustion exhaust gas having been used for the reforming purpose.

15. A process for producing reformed coal as claimed in claim 14 wherein the combustion exhaust gas having been used for the drying purpose is fed to and treated by an electrostatic precipitator included in said coal-fired boiler equipment.

16. A process for producing reformed coal as claimed in any of claims 13 to 15 wherein the medium-quality or low-quality coal is cooled by using exhaust gas obtained at the outlet of an electrostatic precipitator included in said coal-fired boiler equipment or at a point downstream thereof, or a gaseous mixture composed of the exhaust gas and air.

17. A process for producing reformed coal as claimed in any of claims 13 to 15 wherein said coal-fired boiler is equipped with a coal-fired auxiliary furnace, and hot combustion exhaust gas from said auxiliary furnace is used in admixture with the combustion exhaust gas obtained at the outlet of said economizer or at a point downstream thereof.

18. A process for producing reformed coal as claimed in claim 16 wherein said coal-fired boiler is equipped with a coal-fired auxiliary furnace, and hot combustion exhaust gas from said auxiliary furnace is used in admixture with the combustion exhaust gas obtained at the outlet of said economizer or at a point downstream thereof.

19. A process for producing reformed coal as claimed in claim 17 wherein the combustion exhaust gas having been used for the drying purpose is fed to and treated by said auxiliary furnace.

20. A process for producing reformed coal as claimed in claim 18 wherein the combustion exhaust gas having been used for the drying purpose is fed to and treated by said auxiliary furnace.

21. A process for producing reformed coal as claimed in claim 17 wherein the required amount of the dried coal is self-consumed as fuel for said coal-fired boiler and said auxiliary furnace without cooling it, and the remainder of the dried coal is reformed and cooled.

22. A process for producing reformed coal as claimed in claim 18 wherein the required amount of the dried coal is self-consumed as fuel for said coal-fired boiler and said auxiliary furnace without cooling it, and the remainder of the dried coal is reformed and cooled.

23. A process for producing reformed coal as claimed in

claim 19 wherein the required amount of the dried coal is self-consumed as fuel for said coal-fired boiler and said auxiliary furnace without cooling it, and the remainder of the dried coal is reformed and cooled.

24. A process for producing reformed coal as claimed in claim 20 wherein the required amount of the dried coal is self-consumed as fuel for said coal-fired boiler and said auxiliary furnace without cooling it, and the remainder of the dried coal is reformed and cooled.

25. A system for producing reformed coal including coal-fired boiler equipment comprising a coal-fired boiler having attached thereto an economizer, a denitrator, an air heater, an electrostatic precipitator and a desulfurizer, as well as a dryer, a reformer and a cooler, and adapted to produce reformed coal by heating medium-quality or low-quality coal to a temperature of 180 to less than 300°C and then cooling it to a temperature of 150°C or below or by heating medium-quality or low-quality coal to a temperature of 300 to 500°C at a heating rate of not less than 100°C per minute and then cooling it to a temperature of 250°C or below at a cooling rate of not less than 50°C per minute, wherein the medium-quality or low-quality coal is heated and reformed by using combustion exhaust gas obtained at the outlet of said economizer included in said coal-fired boiler equipment or at the outlet of said denitrator included therein, the medium-

quality or low-quality coal serving as the raw material for reformed coal is dried by using the combustion exhaust gas having been used for the reforming purpose, the combustion exhaust gas having been used for the drying purpose is fed to and treated by said electrostatic precipitator included in said coal-fired boiler equipment, and the coal reformed by heating is cooled by using exhaust gas obtained at the outlet of said electrostatic precipitator included in said coal-fired boiler equipment or at a point downstream thereof, or a gaseous mixture composed of the exhaust gas and air.

26. A system for producing reformed coal as claimed in claim 25 wherein said coal-fired boiler is equipped with a coal-fired auxiliary furnace, and hot combustion exhaust gas from said auxiliary furnace is used in admixture with the combustion exhaust gas obtained at the outlet of said economizer or at a point downstream thereof.